

# RECORDS OF AGROMYZIDAE IN SPAIN INCLUDING 3 SPECIES NEW TO SCIENCE

BY

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I spent a week in Spain at the end of April, 1955 and during this period I was able to spend a short time collecting *Agromyzidae* —leaf-mines and also the flies— on the outskirts of Barcelona and Madrid and also around Algeciras.

I obtained a number of species which are not included among those discovered by Hering during his intensive study of leaf-mines around Malaga and Albarracin (Hering, 1936 and 1939) and which I believe to be new records for Spain and also 3 species new to science, which are described below.

1. On 22nd April 1955 I swept a number of flies which I assumed to be *Phytobia* (*Amauromyza*) *morionella* (Zett.) in the Casa del Campo, west of Madrid. Examination showed the specimens to consist of 4 *morionella* (Zett.) and 5 examples of another *Amauromyza* sp., which is new to science. Empty leaf-mines were obtained at the same time on a species of *Labiatae*, which in the absence of the flower it has not been possible to identify, and Prof. E. M. Hering, Berlin, confirms that these are not referable to the mines of any known species of *Agromyzidae*. It thus seems reasonable to conclude that these mines were produced by the new species, which I now describe:

## *Amauromyza madrilenae* sp. nov.

Head: (Fig. 1) frons at foremost ocellus twice width of eye and slightly less than distance from hind-margin of head to base of antennae. Orbits and lower frons conspicuously projecting above eye. Cheeks well-defined, jowls conspicuously large with semi-circular lower margin, together  $\frac{1}{2}$  height of eye. 2 ors, the upper particularly strong and curving upwards and outwards;



3 - 4 ori, directed inwards. Orbital setulae slight, sparse, predominantly upright. Ocellar triangle small, scarcely extending beyond foremost ocellus. Frons small, flatter than a semicircle, extending to mid-ori. Antennae set slightly apart, 3rd segment slightly longer than broad, rounded at end.

Thorax: 3 + 1 dc, 4th only slightly shorter than 3rd and distance in front of suture somewhat less than that of 3rd behind; 2nd dc at level of sa, distance between 1st and 2nd  $1\frac{1}{2}$  that

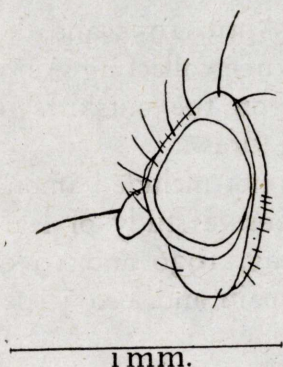


Fig. 1.—Head of *Phytobia* (*Amauromyza*) *madridlena* sp. n.

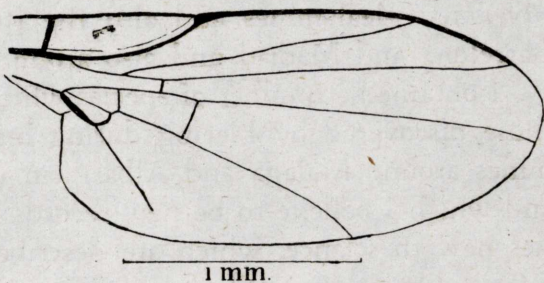


Fig. 2.—Wing of *Phytobia* (*Amauromyza*) *madridlena* sp. n.

between 2nd and 3rd. Acr irregular, in 4 rows, extending to midway between 1st and 2nd dc. 1 well-developed ia midway between 1st and 2nd dc, about 6 ia hairs behind suture.

Wing: as in Fig. 2, apex between  $r_5$  and  $m_1 + 2$  and nearer the latter, last segment of  $m_1$  about  $2\frac{1}{2}$  times length of penultimate. Costa not extending to  $m_1 + 2$ , detectable only for  $1/3$  of distance beyond  $r_5$ . Abdomen broad anteriorly and tapering sharply, in ♀ basal cone of ovipositor greatly elongated, twice length of 6th tergite.

Colour: an entirely dark species. Frons dark brown at rear, matt black in front. Orbits from pvt to front ori shining black. Cheeks and jowls brownish-grey. Lunule greyish; antennae and face black. Thorax and pleura predominantly shining black but slightly matt. Legs uniformly black. Wings with slight brownish tinge. Squamae dark grey with black margins, fringe blackish-grey. Halteres dark brown. Abdomen shining black, 6th tergite



with lighter, grey to brownish margin. Basal cone of ovipositor shining black in upper half, less shining at apex.

The species can be immediately distinguished from all others in the subgenus by the costa tapering to an end shortly after  $r_5$ .

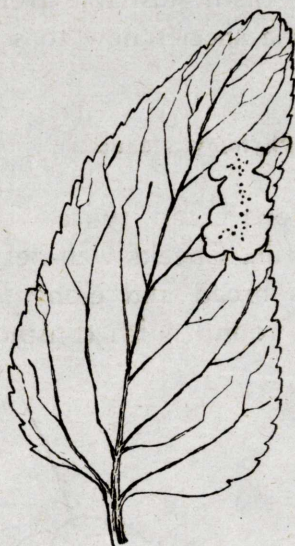


Fig. 3.—Leaf-mine believed to be of *Phytobia* (*Amauromyza*) *madrilena* sp. n.

In Hendel's key (1936, p. 18) the species runs to couplet 46 which should be extended as follows:

46. Costa endet an der Mündung von  $m_1+2$  ... .. 46 a.  
 — Costa endet kurz nach der Mündung von  $r_5$  ... .. *madrilena* sp. nov.  
 46 a. ... .. wie 46 von Hendel.

Holotype ♀, 22nd April, 1955, Casa de Campo, Madrid, in my collection; paratypes: 1 ♂, 2 ♀ in my collection, 1 ♀ presented to Prof. E. M. Hering, all same data.

The leaf-mine which I attribute to this species (Fig. 3) is an upper-surface blotch at the leaf-margin, with the frass in distinguishable lumps in the centre of the mine and elsewhere somewhat greenish-diffused.

2. On 27th April 1955 I found inhabited leaf-mines in abundance on a plant believed to be *Daucus* sp. growing by the



ferry at Los Barrios, near Algeciras. I assumed the species to be the common *Phytomyza anthrisci* Hd., which is the only species known to mine *Daucus* in Central Europe and therefore only collected very few mines. A fly emerged on 20th November and was immediately distinguishable from *P. anthrisci* Hd. by its yellow frons. It is a species new to science which I describe herewith:

*Phytomyza dauci* sp. nov.

Head: (Fig. 4) frons broad, twice width of eye, not projecting above eye in profile. Cheeks well-defined, slightly broadening below eye. Jowls broad and elongated,  $\frac{1}{2}$  height of eye. 3rd antennal segment round, with conspicuously long pubescence.

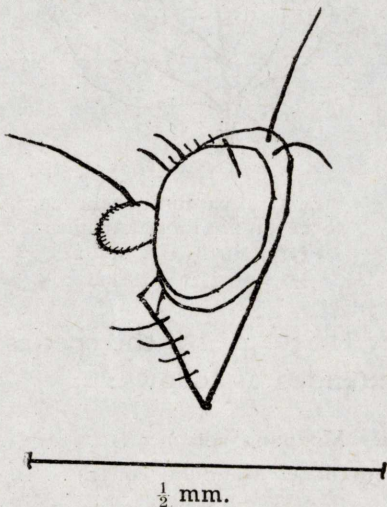


Fig. 4.—Head of *Phytomyza dauci* sp. n.

ce, arista normal. Face with distinct median keel; no epistoma present. 2 ori directed inwards, 1 strong ors directed outwards at  $180^\circ$  to ori (on one side small hair which might be taken as upper ors). Orbital setulae slight.

Thorax: 3 + 1 dc; 3rd anterior to sa, scarcely longer than 4 th, distance between 1st and 2nd almost double that between 2nd and 3rd. Acr irregular, in 2 rows, ceasing before 1st dc. 3 to 4 post-sutural ia hairs.



Wing: 2nd costal segment slightly less than 3 times length of 4th. Length: 2 mm.

Colour: frons bright yellow. Both vte and vti on black ground and upper orbits to ori slightly darkened, greyish. 1st and 2nd antennal segments brownish-yellow, 3rd black. Face and jowls yellow, palps yellow but witr slight greyish darkening.



Fig. 5. — Leaf-mine of *Phytomyza dauci* on *Daucus* sp.

Mesonotum entirely matt grey, mesopleura similiar but with trace of yellow at upper margins. Humeral callus and notopleura greyish-yellow. Remainder of thorax grey. Abdomen somewhat darker, matt: blackish-grey, 6th tergite with well-defined whitish-yellow margin. Basal cone of ovipositor shining black. Legs uniformly grey apart from knees, which on  $p_1$  are conspicuously yellow and on  $p_2$  and  $p_3$  light but less well-defined.

In Hendel's key (1936, pp. 500) the species runs to couplet 87, which should now be extended as follows:

- |       |   |                        |
|-------|---|------------------------|
| 87.   | Fühlergruben gelb, am Grunde höchstens schwach verdunkelt ... ..                                    | 87 a.                  |
| —     | Fühlergruben und Scheitecken schwärzlich. 2 ors ... ..  | <i>fascialis</i> Kalt. |
| 87 a. | Nur 1 ors, höchstens einseitig ein kurzes Härchen anstelle der 1. ors. Fühlergruben hellgelb ... .. | 87 b.                  |
| —     | 2 ors. Fühlergruben $\pm$ verdunkelt. Scheitecken gelb ... ..                                       | <i>aquilonia</i> Frey. |
| 87 b. | Scheitecken vor den vt gelb. Oberrand der Mesopleura zu $1/3$ hellgelb gerandet ... ..              | <i>selini</i> Hg.      |
| —     | Scheitecken schwarz. Mesopleura oben schmal, bleichgelb gerande ... ..                              | <i>dauci</i> sp. n.    |



Holotype ♀, 20th November 1955, ex leaf-mine on *Daucus* sp. Los Barrios, nr. Algeciras, in my collection.

The larva forms an upper surface, linear mine (Fig. 5) filling a number of the finely-divided leaf segments. The frass is in fine grains at the sides of the channel. Pupation in the ground, puparium black. The larva has been described by Hering (1957).

3. On the 24 th April 1955 I found leaf-mines in *Asphodelus microcarpus* Viv. growing in the cork oak woods on the hills west of Algeciras. Most of the mines were already empty but 5 larvae were obtained and from the resulting puparia a single fly emerged on the 28th January 1956. The species proved to be a *Liriomyza* sp. new to science.

*Liriomyza asphodeli* sp. nov.

Head: (Fig. 6) frons at foremost ocellus 3 times width of eye. 2 ori directed inwards, 2 ors directed upwards and outwards (on one side 1 only), orbital setulae minute, sparse and irregular. In

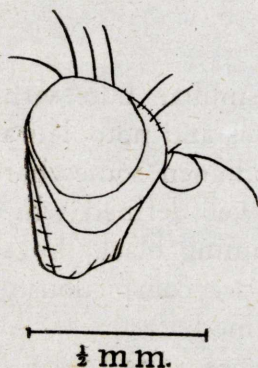


Fig. 6.—Head of *Liriomyza asphodeli* sp. n.

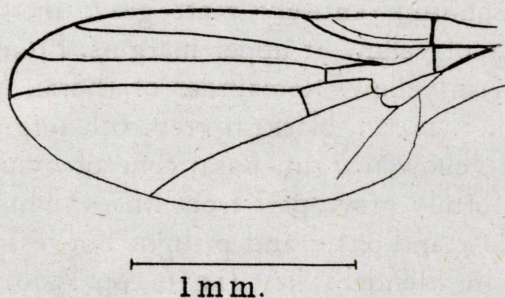


Fig. 7.—Wing of *Liriomyza asphodeli* sp. n.

profile frons greatly projecting above eye, eye relatively small. Cheeks broad, jowls elongated, together  $\frac{1}{2}$  height of eye. 3rd antennal segment rounded but somewhat narrowing anteriorly. Broad epistoma above mouth margin, extending as well-defined facial keel.



Mesonotum: 1st and 2nd dc normal, 2nd at level of sa; 3rd and 4th small, scarcely larger than acr—these in 2 rows extending to midway between 1st and 2nd dc. 2—4 hairs in ia area. i. pa present but small and weak.

Wing: (Fig. 7) length 2.5 mm, 2nd costal segment  $4\frac{1}{2}$  times length of 4th. Last segment of  $m_1$  3 times length of penultimate. tp. at anterior  $\frac{1}{3}$  of cell  $M_{1-2}$ .

Colour: frons, cheeks and jowls bright lemon yellow in fresh specimen (turning to deep orange later), vte in centre of shining black area adjoining margin of eye and extending narrowly along orbits to beyond upper ori. vti on yellow ground but set in well-defined dark base, as also upper ori and ors. Epistoma yellow, face above black, including base of antennae, 3rd antennal segment dark brownish-yellow, 1st and 2nd segments yellow. Palps pale olive-yellow, darker at end.

Mesonotum black, matt but with slight shine. Scutellum with narrow, indistinct olive-yellow band in centre, otherwise extensively black. Humeral callus black in centre, surrounded by olive-yellow which extends along upper and hind margins of mesopleura. Notopleura and supra-alar area similarly yellow. Sterno— and hypopleura black but with small upper area indistinctly yellow. Legs predominantly dark: coxae shining black, f black at base, dark olive-yellow anteriorly with distinctly yellow knees on  $p_1$  and  $p_2$ ; knees on  $p_3$  only indistinctly yellow. Abdomen black, somewhat shining, 6th tergite with narrow yellow margin. Squamae greyish-yellow, with fine, dark-grey fringe.

In Hendel's key (1936, p. 198) the species runs to couplet 23, which should be amended as follows:

23. Im Profile tritt die Stirne an den Fühlerwurzeln auffällig und viel stärker als die Wangen über die Augen vor. Backen in der Mitte  $\frac{1}{3}$  bis  $\frac{1}{2}$  eines



Fig. 8.—Leaf-mine of *Liriomyza asphodeli* sp. n. on *Asphodelus microcarpus* Viv.



- Auges hoch. Die schwarzen Seitenflecken des Schildchens reichen dorsal über die b. sc. Borsten hinauf. Epistom vorhanden ... 23 a.
- Stirn und Wangen als gleichbreiter schmaler Ring vor den Augen sichtbar. Backen in der Mitte nur  $\frac{1}{4}$  Auge hoch. Die schwarzen Seitenflecken des Schildchens reichen nur bis zur b. sc. hinauf. Kein Epistom vorhanden ... 24 a.
- 23 a. Stirn am vordersten Ocellus 3 mal so breit wie ein Auge. Backen  $\frac{1}{2}$  eines Auges hoch ... *asphodeli* sp. nov.
- Stirn nur 2 mal so breit wie ein Auge. Backen  $\frac{1}{2}$  eines Auges hoch ... 24.

The new species can be immediately distinguished from *richteri* Hg. by its large epistoma and from *orbona* Mg. by its conspicuously broad frons.

Holotype ♀, 28th January 1956, ex leaf-mine on *Asphodelus microcarpus* Viv., Algeciras, in my collection.

Leaf-mine linear, whitish, inconspicuous, upper surface, up to 10 cm in length and 3 mm in width. Frass inconspicuous, pupation externally through upper surface exit slit. Puparium reddish-brown.

The following species obtained between the 19th and 24th April 1955 represent new records for Spain:

1. *Agromyza graminicola* Hd. Mines found on *Phragmites* sp. at. Los Barrios, produced flies between June and September, 1955.
2. *A. johannae* de Meij. Mines with young larvae found on *Sarothamnus* sp. at Tibidabo, Barcelona produced flies January to March, 1956.
3. *A. rufipes* Mg. Mines with larvae found on *Echium* sp., Algeciras.
4. *Melanagromyza simplicoides* Hd. Galls on *Salix pedicellata* Desf. Los Barrios produced flies 4 weeks later.
5. *Ophiomyia galii* Hg. Stem mines found on *Galium* sp. at Tibidabo.
6. *Cerodonta phragmitophila* Hg. One specimen swept in ditch by Barcelona airport. This specimen has tibia and tarsi, pleura and mesonotum much darker than examples from Fano, Italy kindly sent to me by Prof. F. Venturi of the Istituto di Entomologia Agraria, Pisa. However, similar colour variation occurs in the closely related *C. denticornis* Pz. and there seems little justification in considering that different species are concerned.
7. *Phytobia* (*Calycomyza*) *humeralis* (v. Ros.). Mines found on *Aster* sp. near Barcelona airport produced flies at the end of May. Flies were also swept at the same spot.
8. *Phytomyza hendeliana* Hg. Mines on *Lonicera* sp., Tibidabo produced one fly on 7.3.56.
9. *Phytomyza bellidina* Hd. Mines on *Bellis* sp., Algeciras produced flies on 25.5 and 29.11.55.



I should also like to record the following species: *Agromyza nigrescens* Hd. Mines found on *Geranium molle* L. and *Erodium moschatum* L'Herit. which were growing together in a hedgerow at Los Barrios. *Melanagromyza cirsii* Rond. One fly swept near Algeciras 25.4.55. *M. cunctans* (Mg.). One fly swept near Barcelona 20.4.55. *Phytomyza* sp. Two specimens swept 19.4.55 on hillside below Tibidabo. The species runs to couplet 187 in Hendel's key and although it is near to *opaca* Hd., it is clearly a different species which I believe to be new to science. Unfortunately both specimens were virtually destroyed in an accident when my younger daughter aged 18 months gained access to my study and in the absence of a detailed description I give herewith some notes which I hope may be of assistance when further specimens are discovered:

Head: ors equal, orbits and cheeks raised, visible above eye in profile. Frons at foremost ocellus twice width of eye. 3rd antennal segment small, round. Acr irregular, in 3 to 4 rows. Wing: length, 2 mm; 2nd and 4th costal segment in ratio 2.7:1.5. Colour: frons dark brownish black, mesonotum and pleura predominantly matt, blackish-grey. Legs black, only on knees slightly lighter.

### Summary

Three new species of *Agromyzidae* collected during a visit to Spain at the end of April 1955 are described —*Liriomyza asphodeli* sp. n. and *Phytomyza dauci* sp. n. bred from leaf-mines found near Algeciras, and *Phytobia* (*Amauromyza*) *madrilena* sp. n. caught in the Casa de Campo, Madrid. In addition records are given of 9 species which, as far as is known, have not previously been found in Spain.

### SUMARIO

Se describen tres especies nuevas de *Agromyzidae*, capturadas durante una visita a España a finales del mes de abril de 1955; *Liriomyza asphodeli* sp. n. y *Phytomyza dauci* sp. n.,



en hojas minadas encontradas cerca de Algeciras, y *Phytobia* (*Amauromyza*) *madrilena* sp. n., cazada en la Casa de Campo (Madrid). Adicionalmente se citan otras nueve especies más que se suponen no han sido encontradas hasta ahora en España.

#### R e f e r e n c e s

HENDEL, F.

- 1931-1936. «Agromyzidae, in: E. Lindner, Flieg. Palaearkt. Reg.». 6 (59).

HERING, M.

1936. «Blattminen von Spanien». *Eos*, Madrid, 11, pp. 331-384.  
1943. «Neue palaarktische Agromyziden. Mit einem Anhang: Agromyziden-Funde in Spanien». *Eos*, Madrid, 19, pp. 51-62.  
1957. «Die Larven der Agromyziden. III.». *Tijd. Ent.* 100, pp. 73-94.